

## **I. Amendments**

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

### **LISTING OF CLAIMS:**

2. (Previously Amended) The optical position tracking system as recited in Claim 5 further comprising a processing unit for determining said position of said target.

3. (Previously Amended) The optical position-tracking system as recited in Claim 5 wherein said position of said target is an absolute position.

4. (Previously Amended) The optical position-tracking system as recited in Claim 5 wherein said target includes a retro-reflecting surface.

5. (Currently Amended) An optical position-tracking system comprising:  
a first light beam steering device for sweeping a first light beam through a first angular range to cause a reflection of said first light beam by a target back to said first light beam steering device to be reflected towards a first direction facilitating determination of a position of said target, wherein said first direction is substantially parallel to a first light direction from which said first light beam is received at said first light beam steering device;

a second light beam steering device for sweeping a second light beam through a second angular range to cause a reflection of said second light beam by said target back to said second light beam steering device to be reflected towards a second direction facilitating determination of said position

of said target, wherein said second direction is substantially parallel to a second light direction from which said second light beam is received at said second light beam steering device, wherein said position of said target is determined using a triangulation technique utilizing a first angular value of said first light beam and a second angular value of said second light beam, and wherein said first angular value and said second angular value depend on the existence of said respective reflection; and

wherein if said target reflects said first light beam when said first light beam is at a first particular angular value, said first light beam steering device sweeps said first light beam through a first limited angular range that includes said first particular angular value until said target fails to reflect said first light beam, whereupon said first limited angular range has been swept through and said first light beam steering device stops sweeping said first light beam.

6. (Currently Amended) The optical position-tracking system as recited in Claim 5 wherein if said target reflects said second light beam when said second light beam is at a second particular angular value, said second light beam steering device sweeps said second light beam through a second limited angular range that includes said second particular angular value until said target fails to reflect said second light beam, whereupon said second limited angular range has been swept through and said second light beam steering device stops sweeping said second light beam.

7. (Previously Amended) The optical position-tracking system as recited in Claim 5 wherein said first light beam steering device and said second light beam steering device are each selected from a group consisting of a MEMS (microelectromechanical system) motor beam steering device, a galvanometer beam steering device, an acousto-optic beam steering device, an electro-optic beam steering device, a grating structure beam steering device, a holographic structure beam steering device, and a scanning mirror beam steering device.

8. (Previously Amended) The optical position-tracking system as recited in Claim 5 wherein said first light beam and said second light beam are each generated by a light source selected from a group consisting of an incandescent technology-based light source, a LED (light emitting diode) technology-based light source, a semiconductor laser technology-based light source, and a rare-earth laser technology-based light source.

10. (Previously Amended) The system as recited in Claim 15 further comprising a processing unit for determining said position of said target.

11. (Previously Amended) The system as recited in Claim 15 wherein said position of said target is an absolute position.

12. (Previously Amended) The system as recited in Claim 15 wherein said position enables controlling a cursor in said computer system.

13. (Previously Amended) The system as recited in Claim 15 wherein said position enables inputting data into said computer system.

14. (Previously Amended) The system as recited in Claim 15 wherein said target includes a retro-reflecting surface.

15. (Currently Amended) A system comprising:  
a first light beam steering device for sweeping a first light beam through a first angular range to cause a reflection of said first light beam by a target back to said first light beam steering device to be reflected towards a first direction facilitating determination of a position of said target, wherein said first direction is substantially parallel to a first light direction from which said first light beam is received at said first light beam steering device;  
a second light beam steering device for sweeping a second light beam through a second angular range to cause a reflection of said second light

beam by said target back to said second light beam steering device to be reflected towards a second direction facilitating determination of said position of said target, wherein said second direction is substantially parallel to a second light direction from which said second light beam is received at said second light beam steering device, wherein said position of said target is determined using a triangulation technique utilizing a first angular value of said first light beam and a second angular value of said second light beam, and wherein said first angular value and said second angular value depend on the existence of said respective reflection;

a computer system for receiving and using said position of said target;  
and

wherein if said target reflects said first light beam when said first light beam is at a first particular angular value, said first light beam steering device sweeps said first light beam through a first limited angular range that includes said first particular angular value until said target fails to reflect said first light beam, whereupon said first limited angular range has been swept through and said first light beam steering device stops sweeping said first light beam.

16. (Currently Amended) The system as recited in Claim 15 wherein if said target reflects said second light beam when said second light beam is at a second particular angular value, said second light beam steering device sweeps said second light beam through a second limited angular range that includes said second particular angular value until said target fails to reflect said second light beam, whereupon said second limited angular range has been swept through and said second light beam steering device stops sweeping said second light beam.

17. (Previously Amended) The system as recited in Claim 15 wherein said first light beam steering device and said second light beam steering device are each selected from a group consisting of a MEMS (microelectromechanical system) motor beam steering device, a galvanometer

beam steering device, an acousto-optic beam steering device, an electro-optic beam steering device, a grating structure beam steering device, a holographic structure beam steering device, and a scanning mirror beam steering device.

18. (Previously Amended) The system as recited in Claim 15 wherein said first light beam and said second light beam are each generated by a light source selected from a group consisting of an incandescent technology-based light source, a LED (light emitting diode) technology-based light source, a semiconductor laser technology-based light source, and a rare-earth laser technology-based light source.

20. (Previously Amended) The method as recited in Claim 22 wherein said position of said target is an absolute position.

21. (Previously Amended) The method as recited in Claim 22 wherein said target includes a retro-reflecting surface.

22. (Currently Amended) A method of optically tracking a target, said method comprising:

sweeping a first light beam through a first angular range at a first location and determining a first angular value of said first light beam;

sweeping a second light beam through a second angular range at a second location and determining a second angular value of said second light beam;

when said target causes a reflection of said first and second light beams back to said first and second locations respectively, reflecting said first and second light beams from said first and second locations respectively towards a direction facilitating determination of a position of said target and determining said position of said target using a triangulation technique utilizing said first and second angular values which depend on the existence of said respective reflection, wherein said direction is substantially parallel to a light direction from

which at least one of said first and second light beams is received at one of said first and second locations; and

wherein said sweeping said first light beam step includes:

if said target reflects said first light beam when said first light beam is at a first particular angular value, sweeping said first light beam through a first limited angular range that includes said first particular angular value until said target fails to reflect said first light beam, whereupon said first limited angular range has been swept through and said first light beam steering device stops sweeping said first light beam.

23. (Currently Amended) The method as recited in Claim 22 wherein said sweeping said second light beam step includes:

if said target reflects said second light beam when said second light beam is at a second particular angular value, sweeping said second light beam through a second limited angular range that includes said second particular angular value until said target fails to reflect said second light beam, whereupon said second limited angular range has been swept through and said second light beam steering device stops sweeping said second light beam.

24. (Previously Amended) The method as recited in Claim 22 wherein said sweeping said first light beam step is performed by a first light beam steering device, wherein said sweeping said second light beam step is performed by a second light beam steering device, and wherein said first light beam steering device and said second light beam steering device are each selected from a group consisting of a MEMS (microelectromechanical system) motor beam steering device, a galvanometer beam steering device, an acousto-optic beam steering device, an electro-optic beam steering device, a grating structure beam steering device, a holographic structure beam steering device, and a scanning mirror beam steering device.

25. (Previously Amended) The method as recited in Claim 22 wherein said first light beam and said second light beam are each generated by a light source selected from a group consisting of an incandescent technology-based light source, a LED (light emitting diode) technology-based light source, a semiconductor laser technology-based light source, and a rare-earth laser technology-based light source.